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A test of physical fitness and a plan for its application for the improvement of teaching.

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Thesis

A TEST OF PHYSICAL FITNESS AND A PLAN FOR ITS APPLICATION FOR THE IMPROVEMENT OF TEACHING

by

Verna M. Baker

submitted in partial fulfilment of the

requirements for the degree of

Master of Arts

1947

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A TEST OF PHYSICAL FITNESS AND A PLAN FOR ITS APPLICATION FOR THE IMPROVEMENT OF TEACHING

INTRODUCTION

Those basic qualities evidenced in physical fitness that are acknowledged as essential to the successful prosecution of national defense, are similar to those qualities upon which the demands for effective peace-time living are based. The difference is one of emphasis rather than of kind. The rigorous conditioning for, and the circumstances of, warfare were most successfully carried out by those who were best fitted to benefit by the program conducted by the armed forces; namely, those whose physical development was essentially sound. Likewise the most successful citizenry, those who can withstand the rigors of a full day's occupational pursuits with a reserve for effective leisure-time living, are those whose basic fitness meets the demands of peace-time living.

Physical fitness implies mainly body conditioning through physical training. Physical development and conditioning are but phases of physical education programs that embrace the concept of the well-rounded development of the human organism and are dedicated to the development and encouragement of fitness in the nation's youth. The effective use of physical fitness tests by colleges and schools has demonstrated that

many activities included in the physical development and conditioning programs lend themselves to the application of standardized measurements.

During the formative years when the sound bases upon which the qualities of healthful living are built, methods and measurements of assuring the desirable results may well be applied.

The measurement of pupil performance provides not only a means of self-evaluation for the pupil, but a stimulus to the progressive efforts of teachers, administrators and directors who are responsible for effective programs in physical education.

TESTING PROGRAMS

The value of a testing program as a motivator to pupils, teachers and administrators is inestimable. Proper application of efficiently recorded test findings should motivate the child to put forth his best efforts and interest him in the development of desirable physical qualities; should motivate the teacher toward the improvement of her teaching methods and the formulation of a program designed to meet the revealed pupil needs; should concern the administrator in the evaluation of teaching efficiency and program effectiveness.

In large urban systems, many factors such as number and size of schools, large class groups, varying facilities, varying teacher qualifications, limited program time allotment and funds, effect the type of teaching program that may be ap-

plied to meet the needs of the group, the environment and the budget.

A study of achievement tests in nine large cities reveals that five of the nine administer tests at elementary school levels: high school tests by all but one.

The test batteries were generally formulated by a committee made up of teacher representatives and members of administrative staffs.

The tests developed for these city elementary systems vary considerably in the number of test items, the range of activity and the grades to which they are applied. The factor of large class groups has dictated the use, primarily, of self-testing types of activities. Measurements of speed, strength, power and agility predominate. Many supplementary events in the form of stunts or events that for the most part comprise the "natural activities common to the everyday life of children"[1] and measurements of skill, rhythm, accuracy and balance are included.

The core test batteries employed appear to have a high degree of reliability, may be scored objectively, are presumably valid and are well balanced to provide a fair measure of physical fitness.

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1. Tentative Tests of Basic Physical Qualities, Division of Physical and Health Education: Philadelphia Public Schools, 1944 (mimeographed)

The selection of events has been influenced and, in many cases, limited by the bases that they:

1. must be administered in many schools with varying facilities,
2. may be administered to large pupil groups,
3. require little or no special equipment, and
4. consume a relatively small amount of program time.

TESTS AND SCORING SCALES

Testing activities with established scales for scoring physical achievement at the elementary school level, although not extensive, have been formulated to provide a working basis from which test batteries may be constructed.

Brace[1] introduced tests of the stunt type designed to measure "native motor ability." These have been widely used and may be considered valuable in a broad sense.

One of the most extensive studies is that conducted by Nielson and Cozens[2] on 79,000 subjects in California schools. Thirty-three events were given and "T"-scale standards established for eight groups for each sex from the fifth through the ninth grades. A combined age-height-weight regression equation formula forms the basis for classifying pupils. The scales,

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1. Brace, David Kingsley: Measuring Motor Ability, New York: A. S. Barnes and Company, 1927.
2. Nielson, Niels P. and Cozens, Frederick: Achievement Scales In Physical Activities for Boys and Girls in the Elementary and Junior High Schools, New York: A.S.Barnes & Company,1934.

limited as they are to a study of California children, may not be accepted as national standards but do provide a working basis for judging the value of test items for selection of test battery activities.

McCloy[1] has developed tests for the prediction of an individual's general motor ability. Power, agility and the ability to learn new skills are the physical factors measured. In the testing of the ability to learn new skills, Dr. McCloy employed his "Iowa Revision of the Brace Tests." A classification index based upon age-height-weight, or age and weight, or height and weight regression equation, has been developed. An athletic quotient, actual score divided by a classification norm, has also been formulated. The McCloy battery has practical value at elementary and high school levels.

That a study of testing at elementary school levels reveals no evidence of approved national standards, need not be interpreted to mean a lack of philosophical aims but rather a seeming lack of scientific evidence that these aims are being met.

The wide scope of activities developed by the above named authors, provides a rich variety of test events in such fundamental activities as running, jumping and throwing. These measures of speed and strength supplemented by activities

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1. McCloy, Charles H., Tests and Measurements in Health and Physical Education, New York: F.S. Crofts and Company, 1942.

measuring agility, skill, control, rhythm and accuracy, provide a working basis from which national standards may, at some future date, result.

Throughout the range of experimental testing programs, an honest and forthright effort is apparent. Each in its own way is seeking to embrace within its scope, a means toward furthering the concept of the well-rounded development of the human organism and toward the encouragement of fitness in our nation's youth.

VALUES OF TESTING:

Testing in physical education implies the standardized measurement of physical ability and performance and its effectiveness to promote health and physical fitness.

Tests have value

A. for the individual performer

1. through the development of physical attributes of
   muscular control (co-ordination)
   power
   strength
   agility, including balance
   endurance
   rhythm
   skills
   speed
   accuracy

2. as they provide a means of
   self-evaluation in physical ability and capacity
   progress in levels of achievement
   growth

for social adjustment
   knowledge
   the development of leadership

3. as they motivate by stimulating
   interest in physical fitness
   interest in self-improvement
   best efforts

B. for the teacher

1. as they indicate
   the physical status of pupils
   the physical needs of pupils

2. as they provide a means for diagnosing
   teaching methods and efficiency
   program effectiveness, of content and time
   results of method and content

3. as they provide a measure of progress in
   pupil improvement
   teaching efficiency
   program development

4. as they motivate for
   effective use of time
   the selection of program content best suited to meet revealed pupil needs
   progressive effort and growth
   professional improvement

5. as they provide
   valuable material helpful to guidance counselling

C. for the administrator

1. as they provide
   a measure of teaching efficiency
   a measure of program effectiveness.

Recognizing the value of measurement as a means toward the realization of those concepts of physical efficiency advanced by effective programs in physical education, a series of events known as the PHYSICAL ABILITY TEST were formulated by a committee comprised of the supervisory staff of the Bureau

of Physical and Health Education, Chicago Public Schools, in co-operation with teachers in the field.

THE STUDY

Following a study of testing materials in the field which were applicable to the elementary grade levels, a battery of tests for boys and girls from the fifth through the eighth grades was developed. The tests were selected because: (1) they require only such facilities and equipment as are available in the Chicago Public Schools; (2) they can be easily administered to large physical education classes; (3) they seem to represent a well balanced battery of six presumably valid measures of motor efficiency; (4) they test activities which are believed to give a fair measure of physical fitness; (5) they can be scored objectively; and (6) they consume a relatively small amount of program time.

The tests were developed to measure the physical fitness in the grades selected, in terms of strength, endurance, speed, power and agility. A battery of six test items each, for boys and girls was formulated. Three of the items are the same for boys and girls.

The Tests:

for boys and girls

1. Knee Raise from a Hang Position
2. Standing Broad Jump
3. 40 Yard Dash

for boys

4. Softball Throw for Distance
5. Pull-Ups
6. Running High Jump

for girls

4. Basketball Throw for Distance
5. Push-Ups from a Kneeling Position
6. Reach Jump

It was the consensus of opinion among the committee members that a test of the ability to support the body weight from a hang, was a desirable test. Since no tests of this type were available, considerable experimentation was done to make the test meaningful as well as practical. The result was that knee raising was added to the hang. This added action called for an active hang position, a "position essential as a starting position for other activities."[1] Further, "there is more muscular contraction which results in a fixation of the articulations and support of the body weight by the muscles;"[2] the shoulder girdle is held to more nearly its normal position thus preventing the strain and stretching of the shoulder joint that would result in the passive hang position. Distinct postural values are thus realized.

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1. Scott, M. Gladys, Analysis of Human Motion, New York: F. S. Crofts and Company, 1946, p. 169

2. Scott, M. Gladys, op. cit. p. 168

The abdominal muscles are called into play to support the front of the pelvis to furnish fixation for the leg action and counteracts any tendency toward an increased lumbar curve. This furnishes additional posture values.

Hip flexor strength is also a feature of the test, as well as that of grip strength. It has been revealed that a subject is able to continue knee raises as long as he is able to hang, which indicates that the test is primarily one of endurance, based upon the strength of the grip.

It was found that a rate of approximately one knee raise per second was an efficient rate of action and that a minute to a minute and a half was thought to be a fair index of a pupil's ability to support the body weight. Beyond this point there was a question of fatigue setting in to the extent that the postural benefits might be lost and injury to the pupil, due to strain, result. It was deemed wise, therefore, to limit the number of knee raises (for maximum score) to 65 for the boys and 60 for the girls.

The possibility of tenseness of the arms and shoulder girdle resulting from prolonged holding of the active hang, and thereby hastening fatigue, is recognized. In order to relieve such tenseness and to postpone the point where fatigue sets in, suggestions to the teacher includes instruction to the pupils of occasional momentary relaxation of the arms and shoulder girdle, while in the full hang position.

The tests would seem to be, "a measure of the

willingness and ability of the subject to continue exerting himself in a demanding situation and to that extent may be considered to give an approximate measure of the ability to endure."[1]

The modified push-up from a kneeling position, a test of arm and shoulder girdle strength, was another test selected by the committee as it seemed to meet the afore-mentioned criteria.

In its initial form, the test called for dips with chin touch to floor from a kneeling position in which the thighs and arms were at right angles to the trunk. The resultant high scores were indicative of the inadequacy of this event to measure true arm and shoulder girdle strength. A search for a more effective test led to the adoption of the push-ups used by the Women's Army Corps as an arm and shoulder girdle strengthening exercise and as a test item in the "Physical Performance Levels for High School Girls."[2] In this form the test is described as: - "Lie face down on the floor with body straight and legs together. Bend the knees to a right angle and place the hands on the floor at shoulder level. Push up to a position in which the arms are straight and the weight supported entirely on the hands and knees; do not bend the hips or round or hollow the back. Next, bend the arms until the

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1. Metheny, Eleanor and Committee, "Physical Performance Levels for High School Girls," Journal of Health and Physical Education. 14:8 (October) 1943.
2. ibid.

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chest touches the floor. Do not permit legs or waist to touch. The weight continues to be supported by the arms and knees..."[1]

In conducting the test numerous difficulties were encountered. Inability on the part of girls to maintain the proper position of the body, especially the hips, was noted. Either the hips were so high as to throw the weight onto the knees, or the hips sagged with thighs and abdomen resting on the floor. In either case the value of the test was nullified.

The committee was reluctant to discard the test because of its value as a test of arm and shoulder girdle strength. Therefore, further experimentation was conducted. The result was the introduction of the take-off board (or mat folded to a thickness of from four to five inches) upon which the hands are placed. This, while not materially changing the effectiveness of the test, has proved to be effective in removing the error of thigh and abdomen resting on the floor. The matter of correct body position is being met through proper teaching.

The starting position is now a kneeling position with hands on the high edge of the take-off board, arms in full extension. From here each dip to chest touch on the board and return to the extended position, constitutes one push-up.

The remaining test items are those commonly found in

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1. Metheny, Eleanor and Committee, "Physical Performance Levels for High School Girls," Journal of Health and Physical Education. (October) 1943, p. 444.

batteries measuring physical fitness.

The tests are administered during the Spring semester in regular scheduled classes in physical education. Squad formations under the leadership of "squad leaders" and partner formations are employed.

The test results are recorded on cards prepared for this purpose. (see page 17)

HISTORY

The test items were administered to some 25,000 boys and girls in the Spring of 1943. From these data, samplings representative of a cross section of school membership with a minimum of 2,000 cases in each item were used for the construction of grade norms for boys. A tentative scoring table for the boy's events was distributed in 1944.

In 1944, data were collected which included the first revision of the girl's push-ups. Following the same procedure as for the boys, grade norms were set up for the girl's tests.

The resulting norms for both boys and girls were then incorporated in an experimental four-year score-card form, (mimeographed; see pages 15 and 16). These tentative forms were distributed as scoring references to all elementary schools in the Spring of 1945. Ten representative schools received enough of these scoring forms for trial to determine their adequacy.

A few minor changes were made and in the Spring of 1946, the present four-year PHYSICAL ABILITY RECORD, SCORE CARD

was distributed for pupils in the fifth and sixth grades. (See page 17)

A change in the range of the total scores for "pupils all-round accomplishment"[1] ratings seems desirable at this time. Due to the fact that a pupil's efforts to perform are recognized by a point in each test event, thus totaling six points for a "poor"[2] accomplishment rating; it seems more fair to raise the number of points necessary for a "Fair" rating. This increased figure also means that a child must attain half the total points obtainable in the "Fair" bracket to enter the "Fair" scoring range. The same principle is applied to the other scoring brackets. (See page 15)

In the semester ending June 1946, 41,995 boys and 41,845 girls participated in the testing program.

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1. Reference: Physical Ability Record, Score Card, page 17.

2. ibid. p. 17.

BUREAU OF PHYSICAL EDUCATION
CHICAGO PUBLIC SCHOOLS

Boys' Physical Ability Records - Elementary Schools

Name of Pupil_____ School_____

School Grade		V					VI					VII					VIII				
		Date / Age					Date / Age					Date / Age					Date / Age				
		H'gt. / W'gt.					H'gt. / W'gt.					H'gt. / W'gt.					H'gt. / W'gt.				
Rating or Points		P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5
Knee Raise	Times	Under 5	5	25	45	65	Under 5	5	30	50	70	Under 5	5	30	50	70	Under 10	10	30	55	75
St.Broad Jump	Dist.	Under 4'	4'	4'8"	5'6"	6'2"	Under 4'4"	4'4"	5'	5'10	6'6"	Under 4'8"	4'8"	5'4"	6'2"	6'10	Under 5'	5'	5'10	6'6"	7'4"
Ball Throw	Dist.	Under 40'	40'	60'	80'	100'	Under 50'	55'	75'	95'	115'	Under 60'	60'	85'	110'	135'	Under 75'	75'	100'	130'	155'
Run.High Jump	H'gt.	Under 2'6"	2'6"	2'10	3'4"	3'8"	Under 2'8"	2'8"	3'	3'6"	3'10	Under 2'10"	2'10	3'2"	3'8"	4'2"	Under 3'	3'	3'6"	3'10	4'4"
Pull Ups	No.	0 A TRY	1	2	4	6	0 A TRY	1	2	4	7	0	1 A TRY	2	5	8	0 A TRY	1	3	6	9
40 Yd. Dash	Time	Over 8.2	8.2	7.4 -or	6.8 less	5.8 -	Over 8.	8.	7.2 -or	6.6 less	5.8 -	Over 7.4	7.4	6.8 -or	6. less	5.4 -	Over 7.2	7.2	6.6 -or	5.8 less	5.2 -
TOTAL																					
Mean Grade-Age		10 Yrs. 6 Mos.					11 Yrs. 6 Mos.					12 Yrs. 6 Mos.					13 Yrs. 6 Mos.				

Directions. This card provides a four-year record for each pupil from the fifth through the eighth grade. Locate the grade and event to be rated or scored. Then place the actual record the pupil has made in the square that includes this score; e.g. if a pupil in the sixth grade jumps 5' 8" in the Standing Broad Jump, this record is placed in the square under 5'. To ascertain a pupil's all-round accomplishment, total the points in the six events and rate according to the following table: P=6 or less, F=7 to 12, G=13 to 18, E=19 to 24, S=25 to 30.

BUREAU OF PHYSICAL EDUCATION
CHICAGO PUBLIC SCHOOLS

Girls' Physical Ability Records - Elementary Schools

Name of Pupil_____ School_____

School Grade		V					VI					VII					VIII				
		Date Age H'gt. W'gt.					Date Age H'gt. W'gt.					Date Age H'gt. W'gt.					Date Age H'gt. W'gt.				
Rating or Points		P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5
Knee Raise	Times	Under 5	5	20	40	60	Under 5	5	20	45	65	Under 5	5	25	45	65	Under 10	10	25	45	65
St. Broad Jump	Dist.	Under 3'8"	3'8"	4'4"	5'	5'8"	Under 3'10"	3'10	4'6"	5'4"	6'	Under 4'	4'	4'10"	5'8"	6'4	Under 4'2"	4'2"	5'	5'10"	6'6"
Ball Throw	Dist.	Under 14'	14'	20'	26'	32'	Under 16'	16'	22'	30'	36'	Under 18'	18'	26'	34'	40'	Under 20'	20'	28'	36'	44'
Reach Jump	H'gt.	Under 6"	6"	8"	10"	12"	Under 7"	7"	9"	11"	13"	Under 8"	8"	10"	12"	14"	Under 9"	9"	11"	13"	15"
Knee Push Up	No.	Under 2	2	8	14	20	Under 2	2	9	16	22	Under 3	3	10	18	26	Under 3	3	11	20	28
40 Yd. Dash	Time	Over 8.6	8.6 Or Less	7.8	7	6.4	Over 8.4	8.4 Or Less	7.6	6.8	6.2	Over 8.2	8.2 Or Less	7.4	6.8	6.	Over 8	8 Or Less	7.2	6.6	5.8

Directions. This card provides a four-year record for each pupil from the fifth through the eighth grade. Locate the grade and event to be rated or scored. Then place the actual record the pupil has made in the square that includes this score; e.g. if a pupil in the 7th grade makes a throw of 32' in the Ball throw, this record is placed in the square under 26'. To ascertain a pupil's all-round accomplishment, total the points in the six events and rate according to the following table: P- 6 or less, F- 7 to 12, G- 13 to 18, E- 19 to 24, S- 25 to 30.

Form 2560A 83

BUREAU OF PHYSICAL EDUCATION
CHICAGO PUBLIC SCHOOLS
Boys—Physical Ability Record, Score Card—Elementary

Name of Pupil_____ School_____

School Grade		V					VI					VII					VIII				
		Date Age					Date Age					Date Age					Date Age				
		Ht. Wt.					Ht. Wt.					Ht. Wt.					Ht. Wt.				
Rating or Points		P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5
KNEE RAISE	NO.	UNDER 5	5	25	45	65	UNDER 5	5	30	50	70	UNDER 5	5	30	50	70	UNDER 10	10	30	55	75
ST. BROAD JUMP	DIST.	UNDER 4'	4'	4'8"	5'6"	6'2"	UNDER 4'4"	4'4"	5'	5'10"	6'6"	UNDER 4'8"	4'8"	5'4"	6'2"	6'10"	UNDER 5'	5'	5'10"	6'6"	7'4"
BALL THROW	DIST.	UNDER 40'	40'	60'	80'	100'	UNDER 50'	55'	75'	95'	115'	UNDER 60'	60'	85'	110'	135'	UNDER 75'	75'	100'	130'	155'
RUN. HIGH JUMP	H'GT.	UNDER 2'6"	2'6"	2'10"	3'4"	3'8"	UNDER 2'8"	2'8"	3'	3'6"	3'10"	UNDER 2'10"	2'10"	3'2"	3'8"	4'2"	UNDER 3'	3'	3'6"	3'10"	4'4"
PULL UP	NO.	0	1	2	4	8	0	1	2	4	7	0	1	2	5	8	0	1	3	6	9
40 YD. DASH	TIME	OVER 8.2	8.2	7.4 OR LESS	6.8	5.8	OVER 8.	8.	7.2 OR LESS	8.8	5.8	OVER 7.4	7.4	8.8 OR LESS	6.	5.4	OVER 7.2	7.2	6.6 OR LESS	5.8	5.2
Total																					
Mean Grade—Age		10 Yrs. 6 Mos.					11 Yrs. 6 Mos.					12 Yrs. 6 Mos.					13 Yrs. 6 Mos.				

Directions. This card provides a four-year record for a pupil from the fifth through the eighth grade. Locate the grade and event to he rated or scored. Place the actual record the pupil has made in the square that includes this score; e.g. if a pupil in the sixth grade jumps 5' 8" in the Standing Broad Jump, this record is placed in the square under 5'. To ascertain a pupil's all-round accomplishment, total the points in the six events and rate according to the following tahle: P=6 or less, F=7 to 12, G=13 to 18, E=19 to 24, S=25 to 30.

Form 2567A 83

BUREAU OF PHYSICAL EDUCATION
CHICAGO PUBLIC SCHOOLS
Girls—Physical Ability Record, Score Card—Elementary

Name of Pupil_____ School_____

School Grade		V					VI					VII					VIII				
		Date Age					Date Age					Date Age					Date Age				
		Ht. Wt.					Ht. Wt.					Ht. Wt.					Ht. Wt.				
Rating or Points		P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5
KNEE RAISE	NO.	UNDER 5	5	20	40	60	UNDER 5	5	20	45	65	UNDER 5	5	25	45	65	UNDER 10	10	25	45	65
ST. BROAD JUMP	DIST.	UNDER 3'8"	3'8"	4'4"	5'	5'8"	UNDER 3'10"	3'10"	4'6"	5'4"	6'	UNDER 4'	4'	4'10"	5'8"	6'4"	UNDER 4'2"	4'2"	5'	5'10"	6'6"
BALL THROW	DIST.	UNDER 14'	14'	20'	26'	32'	UNDER 16'	16'	22'	30'	36'	UNDER 18'	18'	26'	34'	40'	UNDER 20'	20'	28'	36'	44'
REACH JUMP	H'GT.	UNDER 6"	6"	8"	10"	12"	UNDER 7"	7"	9"	11"	13"	UNDER 8"	8"	10"	12"	14"	UNDER 9"	9"	11"	13"	15"
KNEE PUSH UP	NO.	UNDER 2	2	8	14	20	UNDER 2	2	9	16	22	UNDER 3	3	10	18	26	UNDER 3	3	11	20	28
40 YD. DASH	TIME	OVER 8.6	8.6	7.8 OR LESS	7.	8.4	OVER 8.4	8.4	7.6 OR LESS	6.8	6.2	OVER 8.2	8.2	7.4 OR LESS	6.8	6.	OVER 8.	8.	7.2 OR LESS	6.6	5.8
Total																					
Mean Grade—Age		10 Yrs. 6 Mos.					11 Yrs. 6 Mos.					12 Yrs. 6 Mos.					13 Yrs. 6 Mos.				

Directions. This card provides a four-year record for a pupil from the fifth through the eighth grade. Locate the grade and event to he rated or scored. Place the actual record the pupil has made in the square that includes this score; e.g. if a pupil in the 7th grade makes a throw of 32' in the Ball Throw, this record is placed in the square under 26'. To ascertain a pupil's all-round accomplishment, total the points in the six events and rate according to the following table: P=6 or less, F=7 to 12, G=13 to 18, E=19 to 24, S=25 to 30.

Because these tests were designed for local use, and because of the specific grade placement of pupils in physical education classes with comparatively regular grade advancement, the tests were formulated on the grade level basis with pupil mean-grade age indicated on the record, score card.

The score card is constructed to provide a four-year individual record and throughout the administration of the tests, the emphasis has been placed upon the individual's record of achievement and his own progress during four years of performance. Thus, while certain values such as those provided by age-height-weight formulas and "T"-score scales for scoring are fully realized, the need for simplifying and reducing computations for the teacher was felt to be justified during the period this program was being introduced.

Present indications are that the test battery is providing the motivation to pupils, teachers and administrators that was hoped for.

Further comparative studies, correlations and modifications are anticipated and plans for their development are in progress.

A brief manual describing the tests was developed in 1943 to introduce the tests to teachers of physical education. Subsequent editions containing modifications, teaching suggestions and such changes as were deemed necessary to the fulfillment of the desirable aims, have been issued annually.

The following revised form of the MANUAL OF INSTRUCTION together with the supplement, THE APPLICATION OF TEST RESULTS FOR THE IMPROVEMENT OF TEACHING, is proposed for use in the future.

BUREAU OF PHYSICAL EDUCATION

CHICAGO PUBLIC SCHOOLS

1947

PHYSICAL ABILITY TESTS

for

Boys and Girls from the 5th to 8th Grades

SPRING SEMESTER

A MANUAL OF INSTRUCTION

BUREAU OF PHYSICAL EDUCATION

CHICAGO PUBLIC SCHOOLS

TO THE TEACHER OF PHYSICAL EDUCATION:

Testing is predicated upon the principle that it is necessary to teach the physical skills and rules of correct performance.

Any techniques used in teaching or testing should contemplate participation by the entire class with a minimum of inactivity. Class work, squad work or partners aiding or checking each other may fulfill this objective.

All tests should be preceded by an adequate conditioning period, designed to prepare the pupils for the events to be tested.

Such a conditioning period includes:

1. a warm-up period of
   running, skipping, "commando" exercises or rhythmic activities
2. an exercise period of
   strengthening, limbering, acceleration and rhythmic type activities such as will prepare the pupils for the particular events of the testing program to follow.

DIRECTIONS FOR ADMINISTERING TESTS

Read Carefully

EVENTS for BOTH BOYS and GIRLS

I. DOUBLE KNEE RAISE FROM HANG POSITION

II. STANDING BROAD JUMP

III. 40 YARD DASH

EVENT NO. I -- DOUBLE KNEE RAISE

Equipment: Stall bars, vertical or horizontal ladders, horizontal bar or any apparatus from which a pupil may safely hang.

Activity: From a full active hang, raise knees to hip height and return to start position.

Method of Scoring: Each complete raising and lowering of the knees is counted as one knee raise.

NOTE:

1. Feet must be above and clear of the floor throughout the activity.
2. Knees must be raised fully to hip height to score.
3. Thumping of heels against rungs should be discouraged.
4. No rest or change of grip is permitted.

Teaching Suggestions:

1. Partners are recommended to count the number of knee raises and to indicate by hand the height the knees should be raised.

2. Apparatus exercises involving hanging should be given preceding the testing program. At this time the active hang (arms slightly contracted and head erect) position should be taught and practiced.

3. In order to relieve tenseness that might result from prolonged holding of the active hang position, pupils should be taught occasional momentary relaxation while in the full hang position.

4. If horizontal bar or horizontal ladder is used, an assistant should stand behind the performer and, by placing the hands just below the performer's waist, keep the body from swinging.

Build-up Activities:

1. Apparatus exercises involving hanging.

2. "Pushing, pulling, tug-of-war.

3. Chinning, push-ups, climbing, throwing.

4. Mat stunts, wheelbarrow walk, etc.

5. Games involving use of arms."[1]

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EVENT NO. II. -- STANDING BROAD JUMP

Equipment: A take-off board or line on floor, mats, tape measure or calibrated stick and chalk.

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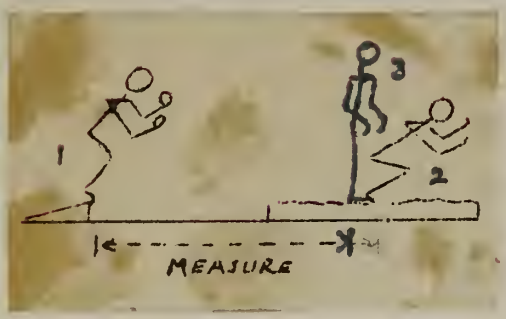
1. Tentative Tests of Basic Physical Qualities, Division of Physical and Health Education, Philadelphia Public Schools, 1944 (mimeographed)



Activity: From a crouched stand on high edge of take-off board, jump forward to a landing on mat.

Method of Measuring: The distance jumped is measured in feet and inches from the front of the take-off board to the heel of the foot nearest the take-off board.

Should the pupil fall backward, the test is repeated until he remains in an upright position.

NOTE:

1. "A vigorous arm swing and bent knees should precede the jump."[1]
2. Upon landing, the body weight should be tipped forward so to prevent falling back.
3. Upon landing, feet should be together.
4. Make certain mats do not slide.

Teaching Suggestions:

1. Have pupils practice arm swing and knee action.
2. Have pupils aim to get height during jump: "height helps get distance."[2]
3. Have pupils practice landing with feet together and weight under control, so that maximum records may be made.

Build-up Activities:

1. Rope jumping activities, emphasizing foot flexion.
2. Body conditioning and "commando" exercises.

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1. The Cincinnati Motor Efficiency Pentathlon, Cincinnati Public Schools, 1944, (mimeographed)
2. Self-Testing Events, Curriculum Division, Los Angeles City School District, 1945.

3. Racing, running games, relays and stunt running.

4. "Jumping games, hop scotch, etc."[1]

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EVENT NO. III. -- 40 YARD DASH

Equipment: A 40 yard straight, level course laid out on play field or side walk, stop watch or watch with sizable second hand.

Activity: From behind a well-defined start line, the contestant runs as fast as possible to the 40 yard distance mark.

Method of Timing: The contestant's record is the elapsed time between the "GO" signal and when he crosses the finish line. "A finish is counted when any part of his body, except his hands or arms, reaches the finish line."[2]

NOTE:

1. Ample distance beyond the finish line should be allowed to give the runner space in which to slow down after finishing.

2. Runner should be encouraged not to slow down until after he has completed the 40 yard distance.

3. The "GO" signal may be a lowering of the arm or "handkerchief."

Teaching Suggestions:

1. As the crouch start is faster than any other type of start (when properly learned) it is desirable that the "on-your-mark," "get-set," and "go" positions be practiced. This may be included in the conditioning period of the lesson and may be begun well in advance of the testing period.

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1. Tentative Tests of Basic Physical Qualities, Division of Physical and Health Education, Philadelphia Public Schools, 1944, p. 6, (mimeographed)

2. Self-Testing Events, Curriculum Division, Los Angeles City School District, 1945.

2. Practice crouch starts and short fast take-offs.

3. Practice at 50 and 60 yard distances occasionally.

Build-up Activities:

1. 50 or 60 yard dashes.

2. Running with exaggerated knee action.

3. Conditioning exercises involving leg action.

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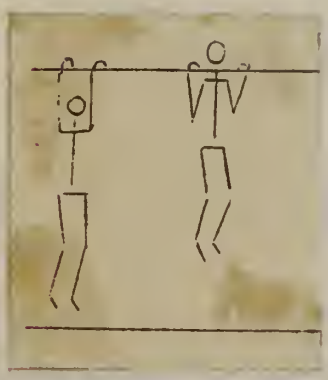
EVENTS FOR BOYS

IV. PULL-UPS

V. SOFTBALL THROW FOR DISTANCE

VI. RUNNING HIGH JUMP

EVENT NO. IV. -- PULL-UPS



Equipment: Horizontal bar, horizontal ladder, top rung of stall bar or any apparatus from which a pupil may safely hang.

Activity: Using either a forward or reverse grip, from a hang position, flex arms upward until chin touches top of bar. Return to free hang with arms in full extension.

Method of Scoring: Each touch of chin to top of bar, "without snap, swing or kick,"[1] is counted one pull-up.

NOTE:

1. Be sure arms are fully extended when beginning the test and after each successful pull-up.

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1. Self-Testing Events, op. cit. p. 8.

2. A pull-up is not completed unless the chin reaches top of bar.

3. Feet should not come in contact with floor at any time during performance.

4. No rest or change of grip is permitted.

5. Have partner prevent swinging.

Teaching Suggestions:

1. Pupils unable to complete a pull-up, may be given assistance, during practice periods, by lifting them at hips.

2. Partners are recommended to count the number of pull-ups and to judge performance.

Build-up Activities:

1. Apparatus exercises involving hanging and arm flexion.

2. Pole climbing.

3. See activities listed under Knee Raise.

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EVENT NO. V. -- SOFTBALL THROW FOR DISTANCE

Equipment: One 16 inch ("Indoor") ball, tape measure, a well-defined start line and a line six feet behind to designate running-start area.

Activity: Using a free overhand throw from behind the start line, the contestant throws the ball as far as possible. A running-start of not more than six feet is permitted.

Method of Measuring: The distance from the start line to the point where the ball lands is measured in feet and inches, provided the contestant has not touched nor stepped across the start line with either foot during the throw.

NOTE:

1. Previously measured zones are recommmended, eg; lines drawn at 50, 60, 70, 80, 90 etc. foot intervals. Measuring from nearest line to point at which ball lands, results in shorter measuring; thus saving time and effort.

2. Appoint a "judge" of the start line to see that there is no infringement or fouling.

3. Appoint a "judge" of point at which ball lands.

Teaching Suggestions:

1. Teach good throwing form.

2. Start practice throwing from shorter distances.

3. Have pupils aim for relative height as the proper arc adds distance.

Build-up Activities:

1. Ball throwing relays, drills and practice.

2. Exercises involving arm and shoulder girdle muscles.

3. Limbering exercises.

4. See activities listed under Knee Raise.

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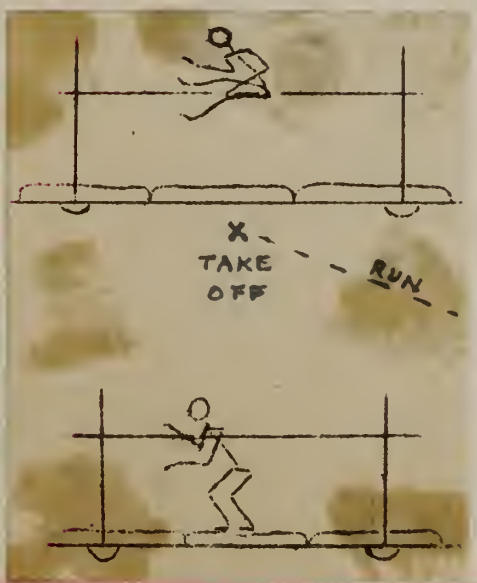

EVENT NO. VI. -- RUNNING HIGH JUMP

Equipment: Jump standards, cross bar, mats.

Activity: From a running approach, clear bar with body, in progressive heights until the bar is dislodged twice in succession at the same height.
(Boys must use the scissors style jump and landing must be on the feet.)

Method of Measuring: The height in feet and inches at which the contestant last cleared the bar successfully, should be measured. The height from the floor to the upper edge of the cross bar, at the center, is the recorded height.

NOTE:

1. For the sake of safety, only the scissors style jump is permitted.

2. Accidents will be avoided if:

   a. boys are taught to land on both feet (see illustration) and without the use of arms,

   b. mats of double thickness and fully covering landing area, are kept close together to prevent injury to ankles,

   c. boys are not permitted to jump after point of fatigue sets in. The fatigued jumper is not the efficient jumper.

3. "A fair jump is one in which the head of the contestant does not go over the bar before the feet and is not below the buttocks in clearing the bar. Neither diving nor somersaulting is permitted."[1]

4. As this is a time consuming event, it should be well planned in order to avoid over exertion on the part of pupils in jumping too long at maximum heights.

Teaching Suggestions:

1. All jumping must be preceded by an adequate conditioning period.

2. Boys should be encouraged to make short approach runs and to vault over center of bar. (see illustration)

3. A slow, springy, oblique run; rather than a power run should be taught and practiced.

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1. Nielson, Niels P. and Cozens, Frederick, Achievement Scales In Physical Activities for Boys and Girls in the Elementary and Junior HighSchools, New York: A. S. Barnes and Company, 1934.

4. In practice periods form should be emphasized and jumps confined to "lower height than pupil's maximum ability."[1]

Build-up Activities:

1. Walking and running emphasizing springy step.
2. See activities listed under Standing Broad Jump.

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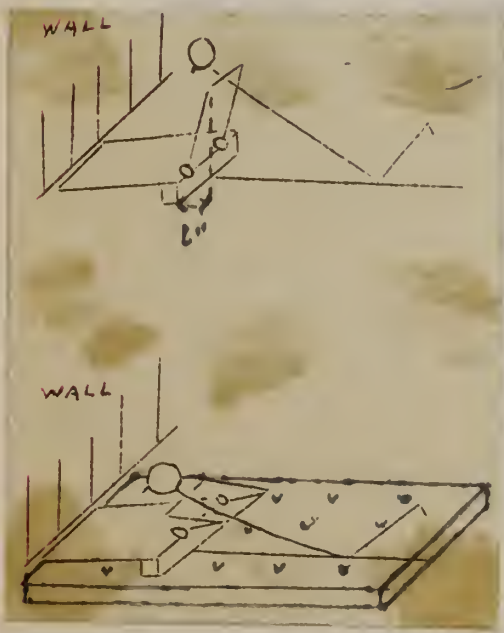
EVENTS FOR GIRLS

IV. PUSH-UPS FROM A KNEE REST POSITION

V. BASKETBALL THROW FOR DISTANCE

VI. REACH JUMP

EVENT NO. IV. -- PUSH-UPS FROM A KNEE REST POSITION



Equipment: Take-off board or mat folded to a height of from 4 to 5 inches, mat.

Activity: Kneel on floor; place hands on high edge of take-off board (or edge of folded mat); (arms are extended and shoulder distance apart and shoulders should be at least 6 inches back from edge of take-off board); bend arms; touch chest above bust line to edge of board, (body must be maintained in a straight line from shoulders to knees); straighten arms to original position.

Method of scoring: A dip and extension counts one push-up.

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1. "Self-Testing Events," op. cit. p. 7.

NOTE:

1. There must be no flexion of the hips at any time during the performance. This includes all forms of "rocking."

2. When mat is used for contestant's comfort, the take-off board should be placed on top of mat.

3. The chest must touch the take-off board at each dip to count.

4. No part of the body may touch the mat except the knees throughout the test.

5. The weight must be kept on the arms.

Teaching Suggestions:

1. Considerable practice of the straight line body position should be given. This may well be included in the conditioning period of the lesson and may be begun well in advance of the testing period.

2. Demonstration of good form is recommended.

3. Train pupils in proper form and in judging form before giving the test.

4. Partners correcting each other's form, especially hip position, is recommended. No sag - no hump.

5. Preliminary mass testing to half the class with other half of class checking, is recommended.

Build-up Activities:

1. Squat thrust exercises with half dips added.

2. Stunts and exercises involving arm support.

3. See activities listed under Knee Raise.

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EVENT NO. V. -- BASKETBALL THROW FOR DISTANCE

Equipment: One well-inflated, official, basketball, tape measure, a well-defined start line and a line six feet behind to designate running start area.

Activity: Using any desired style of throw from behind the start line, the contestant throws the ball as far as possible. A running start of not more than six feet is permitted.

Method of Measuring: The distance from the start line to the point where the ball lands is measured in feet and inches, provided the contestant has not touched nor stepped across the start line with either foot.

NOTE:

1. Previously measured zones are recommended, e.g: lines drawn at 10, 20, 30, 40, etc. foot intervals. Measuring from nearest line to point at which ball lands, results in shorter measuring, thus saving time and effort.

2. Appoint a "judge" of the start line to see that there is no infringement or fouling.

3. Appoint a "judge" of point at which ball lands.

Teaching Suggestions:

1. Teach good throwing form.

2. Teach various throwing forms.

3. Start practice throwing from shorter distances.

4. Have pupils aim for relative height as the proper arc adds distance.

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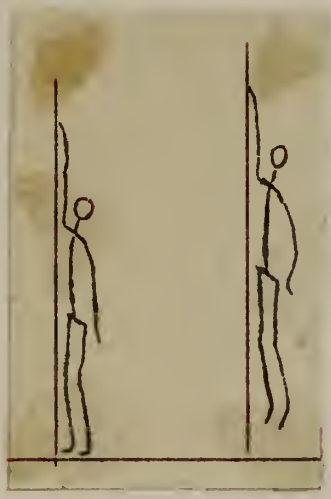
EVENT NO. VI. -- REACH JUMP



Equipment: Wall, pole, side of vertical ladder, (see illustration for efficient optional equipment),[1] chalk.

Activity: From a stand with heels on floor and side of body against wall or other suggested equipment, reach as high as possible. (This reach height is marked.) Jump, reaching as high as possible making chalk mark at highest point.

Method of Measuring: The distance between the standing, reach-height mark and the jumping, reach-height mark is measured in inches.

NOTE:

1. If the optional equipment is used, the board is raised until the pupil's standing reach-height and the "0" line meet. The pupil then jumps and touches the board at her maximum reach. The point in number of inches is recorded. The board is marked with progressive inch lines above the "0" line.

2. Heels must remain on floor during standing reach measurement.

Optional Equipment:

Teaching Suggestions:

1. Teach spring upward from slight knees and ankles flexion.

2. Add an arm swing to the above position for maximum spring. These practice activities may be included in the conditioning period of class lessons preceding the testing period.

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1. This optional equipment was suggested by a teacher in the field.

Build-up Activities:

1. Rope jumping with ankle flexion.
2. Body conditioning exercises involving knee bends, springing, stretching.
3. Dancing, leaping.
4. Jumping games.
5. Stunts involving bending, stretching and springing.
6. Rope races, skip races, etc.

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Application of Mean Grade-Age and Suggested Adjustments

The grade norms as given on the Physical Ability Record, Score Card are derived from records in the Chicago Elementary Schools. These grade norms are based on actual grade memberships which include pupils both above and below the mean grade-age. Since these grade norms include extremes in ages, the card may be accepted for use in scoring pupils in their grade group. However, if in the opinion of the teacher the best interests of a child who might be classified in the "extreme" category in age, weight or height, would be met, the following adjustments may be made:

1. The mean grade-age may be substituted for the grade in rating or scoring pupils; e.g:

   (a) A pupil in the 6th grade, less than 11 years of age, may be scored in the 5th grade grouping.

   (b) A pupil in the 6th grade, more than 12 years of age, may be scored in the 7th grade grouping.

2. A pupil over-age by a year or more may be rated one point below his achievement; e.g:

   A pupil 14 years of age in the 8th grade, scoring 6 points, would have his score reduced to 4 points.

3. A pupil under-age by a year or more may be rated one point above his achievement; e.g:

   A pupil 9 years of age in the 5th grade, scoring 2 points, would have his score increased to 3 points.

4. A pupil over-age in the 8th grade, performing at "Superior" levels, should be encouraged to establish optimum records of his own ability.

5. Compensations for handicaps of over-weight, or height, "extremes" may be made by the teacher when, in his opinion, the best interests of the pupil are realized thereby. Stimulation of the pupils to their best efforts toward progressive performance, is one of the aims of the testing program. When this can be realized through the application of adjustments that do not alter the basic qualities of the tests, the teacher may feel justified to make such adjustments as are listed above.

BUREAU OF PHYSICAL EDUCATION

CHICAGO PUBLIC SCHOOLS

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Suggestions for Class Organization and Tests Procedures

Considering the varying times necessary for the completion of tests events, organization of the class for testing, equipment to be used, recording methods and testing procedure should be planned in advance. Squad organization with well-instructed leaders is recommended. "This arrangement frees the teacher of personally administering each test and gives him an opportunity to supervise"[1] and direct the activities. "The following suggestions may be used in organizing the class for testing:"[2]

1. Before actual testing begins, the exact techniques involved in doing the various test events should be demonstrated and explained. Too, the errors most commonly committed should be pointed out. It is recommended that demonstrations and explanations be made to the class as a whole immediately preceding the testing period.

2. Squad leaders "should be given directions indicating:

   (a) the order in which the tests will be given, and

   (b) directions for administering"[3] and recording each test.

1, 2 and 3. The Cincinnati Motor Efficiency Pentathlon, Cincinnati Public Schools, 1944, p. 14 (mimeographed)

3. Each squad leader "should be instructed in, and given an opportunity to practice with, the various testing devices in advance of the actual testing."[1]

4. "All equipment and markings should be in readiness in advance of the tesing."[2]

5. A well-defined floor plan of the activities area should be made in advance of the testing.

6. Pupils should be advised of the score and rating requirements of each test item preceding the testing program, so that they may know the goals they wish to aim for. Such knowledge on the part of the pupil produces desirable motivation.

7. Pupils should be advised of their final score and rating accomplishment following the testing program, thus making the test more meaningful to them.

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1 and 2. The Cincinnati Motor Efficiency Pentathlon, Cincinnati Public Schools, 1944, p. 14 (mimeographed).

BUREAU OF PHYSICAL EDUCATION

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1947

PHYSICAL ABILITY TESTS

for

Boys and Girls from the 5th to 8th Grades

THE APPLICATION OF TEST RESULTS FOR THE IMPROVEMENT OF TEACHING

A SUPPLEMENT

to the

MANUAL OF INSTRUCTION

BUREAU OF PHYSICAL EDUCATION

CHICAGO PUBLIC SCHOOLS

TO THE TEACHERS OF PHYSICAL EDUCATION:

The Application of Test Results for the Improvement of Teaching

Testing in physical education implies the standardized measurement of physical ability and performance and its effectiveness to promote health and physical fitness.

"Testing is a device for teaching and learning. The successful teacher is the one who knows the best devices and aids to learning and who uses them skillfully. Under the direction of such a teacher tests fit in so smoothly and naturally that they are accepted by the students, are used by the student and teacher, ... and actually become inseparable from the teaching-learning process."[1]

Test results intelligently applied, provide a means of self-evaluation for the pupil; teachers and administrators are provided a means of evaluating the effectiveness of the program in physical education to meet pupil needs.

The following suggestions are recommended for applying the results of the testing program to teaching.

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1. Scott, M. Gladys and French, Esther, Better Teaching Through Testing, New York: A. S. Barnes and Company, 1945. p. 8.

Data provided by the SUMMARY REPORT[1] form may be analysed and evaluated as follows:

I. Section "A", indicates the number of pupils in each grade who have achieved proportionate accomplishment of the city-wide standards; based upon three categories of low (6 to 14 points), intermediate[2] (15 to 22 points) and high(23 to 30 points) point scores.

Total in these areas indicate the tendencies of grade achievement. If marked percentile[3] deviations appear in any of the three categories, an analysis to determine the cause should be made.

Deviations appearing in

1. the low category are indicative of poor grade performance. A further analysis of the test event totals should reveal where these weaknesses lie and methods and means of building up these areas through program modification should be made.
2. the intermediate category are indicative of relatively good performance. An analysis of the test event totals should reveal whether or

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1. See page 3 of Supplement.
2. "Intermediate" may be interpreted as a broad "average" grouping.
3. A sampling reveals that the percentage in the three categories under "A" to be (approximately): 6 to 14 points, 10%; 15 to 22 points, 50%; and 23 to 30 points 40% of the total range.

BUREAU OF PHYSICAL EDUCATION
CHICAGO PUBLIC SCHOOLS

PHYSICAL ABILITY RECORD - SUMMARY REPORT -- ELEMENTARY

Grade	- A -						- B -		- C -		- D -	
	Number of Pupils Who Scored						Total individual participants in All 6 Events		Total Not Completing All 6 Events		Total Participants B + C	
	6 to 14 Points		15 to 22 Points		23 to 30 Points							
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
5												
6												
7												
8												
Totals												

NOTE: Under "A" and "B" enter only the totals of those pupils who have completed all 6 events.

Figures entered under "B" should be the same as "total individual participants" on tabulation sheets.

When completed, mail one copy to the Director of Physical Education not later than _____.

School _____

Date _____

Teacher _____

Principal _____

| | | |

not the performance is of acceptable quality.

3. the high category may be indicative of excellent performance or that the rules of test procedures were being loosely applied. Strict adherence to the rules is imperative for accurate measurement of pupil performance.

II. Section "B" totals should be the same as the "Total Individual Participants" totals, on the "Tabulation of Ratings and Points" form. This figure represents the number of pupils in each grade who have completed all six events. When compared with totals in Sections "C" and "D", the proportionate number of pupils completing the tests may be ascertained. If any large number of pupils did not complete the tests, a study of the reasons should be made and wherever possible the causes of failure corrected. This may call for the co-operation of the Principal, the Supervisor of Physical Education or the Director of Physical Education; especially if it is a matter of school program adjustment or the acquiring of some equipment essential to the testing program.

III. Section "C" (See Section "B")

IV. Section "D" figures submitted by all the schools are totaled and the resultant figure included in the Bureau's annual report to the Superintendent of Schools.

Data provided by the TABULATION OF RATINGS AND POINTS[1] form may be analysed and evaluated as follows:

1. The figures in any event and in any grade reveal the percentage of pupils included in each of the rating classifications. The application of the normal probability curve is perhaps the best measure of the tendency of performance.
2. Should higher totals appear in the lower ("poor" or "fair") brackets, indications are that ability in these areas is lacking. Modifications of the program of activities should then be made to include activities that would build up these body areas.
3. Higher, but faily evenly distributed, totals appearing in the middle ("fair", "good" and "excellent") brackets, are indicative of generally good performance and comply with the expected performance as indicated by the normal probability curve.[2]
4. Higher tendencies in the upper ("excellent" and "superior") brackets may indicate excellence of performance, but as mentioned previously, it may be indicative of loose application of the rules governing performance.

Where excellent performance is found in some test events, but not in all, an attempt to bring the lower

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1. See page 6 of the Supplement.
2. See *events Fig. I. page 8 of Supplement for sample probability curve entries.

BUREAU OF PHYSICAL EDUCATION
CHICAGO PUBLIC SCHOOLS

BOYS -- PHYSICAL ABILITY RECORD -- TABULATION OF RATINGS AND POINTS -- ELEMENTARY

School Grade	V					VI					VII					VIII				
Rating or Points	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5
Knee Raise																				
St. Broad Jump																				
Ball Throw																				
Run. High Jump																				
Pull Up																				
40 Yd. Dash																				
Totals																				
	Total individual participants					Total individual participants					Total individual participants					Total individual participants				

NOTE: Only totals for those pupils in each grade who have completed all 6 events are to be entered on this sheet.

Total individual participants should equal the total across in any one or all events in the grade: eg: The total across in all of the events in grade 5 should be the same as the total in the Knee Raise.

When completed, send one copy to the Director of Physical Education not later than _____.

School _____

Date _____

Teacher _____

Principal _____

BUREAU OF PHYSICAL EDUCATION
CHICAGO PUBLIC SCHOOLS

GIRLS -- PHYSICAL ABILITY RECORD -- TABULATION OF RATINGS AND POINTS -- ELEMENTARY

School Grade	V					VI					VII					VIII				
Rating or Points	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5
Knee Raise																				
St. Broad Jump																				
Ball Throw																				
Run. High Jump																				
Pull Up																				
40 Yd. Dash																				
Totals																				
	Total individual participants					Total individual participants					Total individual participants					Total individual participants				

NOTE: Only totals for those pupils in each grade who have completed all 6 events are to be entered on this sheet.

Total individual participants should equal the total across in any one or all events in the grade: eg: The total across in all of the events in grade 5 should be the same as the total in the Knee Raise.

When completed, send one copy to the Director of Physical Education not later than _____.

School _____

Date _____

Teacher _____

Principal _____

GIRLS -- PHYSICAL ABILITY RECORD -- TABULATION OF RATINGS AND POINTS -- ELEMENTARY

School Grade	V					VI					VII					VIII				
Rating or Points	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5	P-1	F-2	G-3	E-4	S-5
Knee Raise						1	12	23	7	2 = 45										
St. Broad Jump						*2	9	23	9	2										
Ball Throw						*3	10	20	9	3										
Run. High Jump						2	5	15	19	4										
Pull Up						2	13	25	4	1										
40 Yd. Dash						1	2	8	26	8										
Totals						*11	51	114	74	20										
	Total individual participants					Total individual participants				45	Total individual participants					Total individual participants				

Fig. I.

Note: The sum of any one or all events across = the "Total Individual Participants."

*events are sample of Probability curve entries.

items up to the same grade of excellence might be made.

If a general trend of excellence throughout all events is apparent, the teacher should endeavor to enrich the program with activities other than those directly influencing test results. In this case, the emphasis might be toward the rhythmic forms and activities of skill and special coordinations such as tumbling, stunts and simple pyramids; or toward the more social activities of country, folk and basic ballroom dancing. This is especially true in those schools approximating the daily program in physical education.

Thus far the tendencies of grade, test-event groupings have been considered.

Of extreme importance, and in line with the emphasis on individual performance and progress, is the application of the testing results to the individual child.

Records of "poor" performance as indicated on the . . . . RECORD, SCORE CARD,[1] or of pupils who in the opinion of the teacher, are not performing at the height of their potentialities, should be carefully studied. Individual conferences should be arranged in an effort to determine reasons or causes of unsatisfactory achievement.

Physical, psychological and social handicaps should be understood. Where personal incentive is the only stimulus

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1. See page 17.

needed, conferences and continual encouragement should be applied for improved performance.

Some of the handicaps may call for the enlistment of parents, adjustment teacher, home room teacher, principal, squad leader or the child's own "pals". When all agencies within the means of the school have been exhausted, further parental aid should be solicited. This is especially true of correctable physical handicaps.

Cases falling within the categories of "extremes" in age, weight or height may be adjusted according to suggestions made under "Application of the Mean Grade-age and Suggested Adjustments."[1]

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1. See page 14 of the Manual of Instruction.

SUMMARY

Basic qualities of physical fitness are as essential to successful citizenry for withstanding the rigors of peace-time living, as they were to the men of our armed forces in warfare; except in degree.

The effectiveness of physical training to produce physical fitness has been demonstrated, to a degree, in the programs of physical education in colleges and schools.

Standardized measurement of physical performance is feasible in the field of physical education.

During the formative years, when the sound bases upon which qualities of healthful living are built, methods and measurements of assuring the desirable results may be applied.

Tests provide a motivating force for pupils, and for teachers and administrators responsible for effective programs in physical education.

In large urban systems, many factors influence the type and number of test items such as: (1) that they must be administered in many schools with varying facilities; (2) that they may be administered to large class groups; (3) that they require little or no special equipment; and (4) that they consume a relatively small amount of program time.

A study of nine large city systems reveals that five of the nine administer tests at elementary school levels; that

the tests vary considerably in the number of test items and in the grades to which they are applied. The core batteries employed appear to be reliable, objective and presumably valid measures.

Tests devised at elementary levels, though not extensive, do provide the basis for the contruction of test batteries and include measurements of such physical abilities as speed, strength, power and agility.

The value of tests other than as a motivating force are: (1) that they promote physical development, that they provide a means of evaluation and evidence of progress for the pupil; (2) that they provide the means of diagnosis of pupil needs, are a measure of pupil progress and a means of evaluation of program content and method for the teacher; (3) that they provide the administrator with a measure of teaching efficiency and program effectiveness.

A battery of six items each, for boys and girls from the fifth through the eighth grades, was formulated by the Bureau of Physical Education, Chicago Public Schools. The tests: for boys and girls, 1. Knee Raise from a Hang Position, 2. Standing Broad Jump, 3. 40 yard Dash: for boys, 4. Softball Throw for Distance, 5. Pull-ups, 6. Running High Jump: for girls, 4. Basketball Throw for Distance, 5. Push-ups from a Kneeling Position, 6. Reach Jump.

The Knee Raise from a Hang Position and the girl's Push-ups from a Kneeling Position are unique to elementary

testing programs and were developed following considerable experimentation. The remaining events are those more commonly found in test batteries at the elementary level.

As these tests were designed for local use with attending local conditions, they were formulated on the grade level basis with grade norms comprising the scores. Further comparative and analytical studies are anticipated.

Following a year of trial in a tentative form, a four-year progressive record, score card was constructed. These were issued in printed form for pupils of the fifth and sixth grades in the Spring of 1946.

Brief manuals of instruction have been published annually. These have contained instructions for administering the tests and suggestions applicable to the successful development of the tests.

Included in this paper is a proposed revision enlarged to include special directional notes and teaching suggestions.

As the application of test results for the improvement of teaching seemed a matter of major importance to the author, a supplement to the instructional manual has been developed. Methods of analysing test result figures for their significance to the diagnosis of program and teaching effectiveness, are included. Tabulation and summary forms from which the above data are derived, are also included in the supplement.

CONCLUSIONS

A subjective appraisal of the merits of this testing program, resulting from observations by the supervisory staff of the Bureau of Physical Education, is that the tests in their present form are proving to be practical, are being generally well conducted and that they are stimulating the interest of pupils and teachers. The practical merits of the physical ability record, score card have also been borne out.

Now that the tests have become well standardized, comparative studies are in order. These might include (1) a study of the rate of achievement of pupil, or of grade, groups within a school or of a representative sampling of a number of schools; (2) the formulation of "T"-score standards for comparative purposes; (3) comparisons of Chicago standards with those of other testing programs where like event items are being tested; and (4) the working out of correlations of test events.

From present indications the tests are providing the motivation to pupils and teachers that was hoped for. For the future, increased service to pupils and teachers should result from the application of the enlarged manual of instruction and the analyses of data suggested in the supplement.

Continued revisions are not improbable and, as the needs dictate, the efforts of teachers and administrators will be directed toward serving the physical and health needs of pupils in the Chicago Public Schools.

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